NATIONAL TRANSPORTATION SAFETY BOARD
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SELENDANG AYU :
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INTERVIEW OF 4TH ENGINEER :
ANUJ SINGHAL :
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An interview in the above entitled matter was held on Wednesday, December 15, 2004, commencing at 3:00 p.m., before:

BRIAN CURTIS, NTSB
DARRELL HOWELLS, USCG
CAPTAIN LEW KWOK YUE, IMC

P R O C E E D I N G S

MR. CURTIS: Good afternoon, it's December 15, 2004, at approximately 3:00 p.m. and we're here to interview the fourth engineer on the Selendang Ayu, Mr. Anuj Singhal.

FOURTH ENGINEER SINGHAL: Singhal, sir.

MR. CURTIS: Singhal, and before we get started, we'll just identify who's in the interview. Myself, Brian Curtis, with the NTSB, a marine engineering accident investigator.

MR. HOWELLS: Darrell Howells, a marine inspector, U.S. Coast Guard.

FOURTH ENGINEER SINGHAL: Anuj Singhal, fourth engineer of the vessel Selendang Ayu.

MR. CURTIS: Okay, I'll just ask you to speak up Anuj, if you would --

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: -- just so our little machine picks it all up.

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: We'll get started. Like I say, we're going to be jumping around more today, rather than go through the whole accident. We'll go right to it. Do you know what time upon having time to think about it more, the time of the accident, what time the engine would've shut down?

FOURTH ENGINEER SINGHAL: I think chief engineer has stopped the engine before (indiscernible) approximately around 9:50 or 10:00. I don't remember the exact time, but it was somewhere in between 9:30 to 10 o'clock --

MR. CURTIS: Okay.

FOURTH ENGINEER SINGHAL: -- in the morning.

MR. CURTIS: We're trying to pinpoint if the engine shut itself down, or if the chief shut it down.

FOURTH ENGINEER SINGHAL: No, no, chief shut it down, sir.

MR. CURTIS: The chief did stop the engine?

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: I understand from earlier, you got an automatic slow down alarm. Did you see -- were you aware of that?

FOURTH ENGINEER SINGHAL: I never spoke that (indiscernible) because I was down below, outside the control room. So, if there was any alarm, also, so chief engineer was handling that one. So, I don't know about that, but what I know that second engineer asked me to stop the freshwater generator, and I went over there, and by the time I came up, engine was stopped.

MR. CURTIS: So, the chief actually stopped the engine. It didn't break down and stop itself?

FOURTH ENGINEER SINGHAL: I feel that way because

second engineer told me that he's stopping the engine, they are stopping the engine. You go and stop the freshwater generator.

MR. CURTIS: The automatic slow down alarm, what does that indicate when that goes off?

FOURTH ENGINEER SINGHAL: Sir, actually, in this case, as a -- if the -- there are plenty slow down alarms (indiscernible) on the ship. Like, exhaust temperature (indiscernible) alarm, or (indiscernible) alarm, low (indiscernible) pressure, slow down, and sir, I check it highwater temperature slow down. There are plenty alarms on the (indiscernible).

MR. CURTIS: So, if he got one of these alarms that would slow the engine down?

FOURTH ENGINEER SINGHAL: Slow the engine down.

MR. CURTIS: Automatically?

FOURTH ENGINEER SINGHAL: Automatically, sir.

MR. CURTIS: So, while you're in bridge control, and if one of these alarms goes off, the automation slows the engine down?

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: Now, does it stop the engine or slow it down? What's it do to the engine when the alarm goes off?

FOURTH ENGINEER SINGHAL: Sir, if you reset that

alarm, and I think there was one (indiscernible) right, something, (indiscernible) right (indiscernible) of that alarm. If you're all right then it will start -- pick up again, but did the problem is of (indiscernible) nature that in that case you have to solve the problem. First you have to stop the engine. Then, you have to solve the problem, and then you're going to start it again.

MR. CURTIS: Does the automatic slow down alarm actually stop the engine? Will it stop an engine, or just slow it down?

FOURTH ENGINEER SINGHAL: Sir, as far as I know sir, I think it only stopped it -- slow it down.

MR. CURTIS: So, all these different alarms, the high temperatures, the low oil pressures, they set off at automatic slow down alarm?

FOURTH ENGINEER SINGHAL: Yes, sir, some criteria was there for (indiscernible) set in such a way. Suppose (indiscernible) temp is actually 90 or so, it will automatically slow down (indiscernible). I don't know the seconds. I never (indiscernible).

MR. CURTIS: In previous statements, we've heard that the automatic slow down alarm went off. Do you know what alarm went off in the engine room to trigger the automatic slow down alarm?

FOURTH ENGINEER SINGHAL: Sir, I know one time

only about (indiscernible) one time (indiscernible) by the rumor, sir.

MR. CURTIS: Do you remember, the other day on the 6th, the day of the engine problem, do you recall any alarms that day that would've --

FOURTH ENGINEER SINGHAL: On 6th sir?

MR. CURTIS: On December 6th? That morning that would've slowed the engine down? On the bridge they say they've got an alarm, automatic slow down alarm. Do you know anything about that?

FOURTH ENGINEER SINGHAL: Sir, maybe I don't know what time it came, but in my watch, I remember it said eight to twelve. I was outside the control room, and chief engineer was there. If in case there isn't any alarm of importance, he use to call me.

MR. CURTIS: Okay.

FOURTH ENGINEER SINGHAL: Otherwise, he's the one on that particular day was handling the alarm, because his general practice was he use to come down 8:30 after the break passed in our control room.

MR. CURTIS: Okay.

FOURTH ENGINEER SINGHAL: And he use to spend some time over there. So, sir, if any alarm of that slow down -- if slow down is there, then I can hear also. I can hear his signal, but as far as I remember, sir, I never

heard any slow down.

MR. CURTIS: Does the vessel have a logger that if there is an alarm, it --

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: -- writes an alarm?

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: It does?

FOURTH ENGINEER SINGHAL: Yes, sir, it will -- it will log down that -- what that alarm was, at what time it came, and --

MR. CURTIS: Uh-huh?

FOURTH ENGINEER SINGHAL: -- what was the --

UNIDENTIFIED SPEAKER: (Indiscernible.)

MR. CURTIS: We'll just pause for a moment.

(Discussion off the record.)

MR. CURTIS: We just took a momentary break there. We're back, and we now have in the room with us.

MR. RAY: Herbert Ray, with Keysa (phonetic sp.) Young, and Logan.

MR. CURTIS: Thank you. Well, we'll continue on now, Anuj. When you, typically, shut the engine down, and start it up, do you always just use heavy fuel? I guess my question is, when you shut the engine down, you typically put light fuel into it?

FOURTH ENGINEER SINGHAL: Sir, actually, this was

done by the second engineer, and I think normally, we don't use two generator, or two (indiscernible), but on that day, I (indiscernible) somebody changed it or not.

MR. CURTIS: Normally -- it would be normal for you to shut it down, and start it up with heavy fuel?

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: Do you have to pre heat the fuel?

FOURTH ENGINEER SINGHAL: Yes, sir, pre heating the fuel.

MR. CURTIS: What do you have to heat it to? Temperature?

FOURTH ENGINEER SINGHAL: Around 115 to 118 centigrade.

MR. CURTIS: (Indiscernible) centigrade? Any previous problems with starting the engine? Does it normally start pretty good?

FOURTH ENGINEER SINGHAL: Since I had joined the ship, I've always seen it is starting very smoothly.

MR. CURTIS: Okay.

FOURTH ENGINEER SINGHAL: We have (indiscernible) every time (indiscernible) problems.

MR. CURTIS: It starts pretty easily?

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: When you do start the engine, do you use a checklist to start it, typically? An ISM checklist

type thing?

FOURTH ENGINEER SINGHAL: I think one checklist, second engineer was following that checklist.

MR. CURTIS: And that was part of ISM? Are you familiar with the ISM?

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: All ships are different, but on your ship, when you start the engine with a checklist, did you have to write it down, or save the checklist, or anything?

FOURTH ENGINEER SINGHAL: No, I don't think so. I saw the checklist I think on the wall of the control room.

MR. CURTIS: Okay.

FOURTH ENGINEER SINGHAL: So, after checking everything, second engineer is making -- dictate an offer that he's signing for it (indiscernible).

MR. CURTIS: Do you have to log it that you started it as per ISM checklist in the log book?

FOURTH ENGINEER SINGHAL: I think so. They were logging it in the log book.

MR. RAY: Could I just -- you asked him two questions a little while back. You said did you use ISM, and then you said, do you know what a checklist is, and he said, yes, and I'm not sure what he said yes to.

MR. CURTIS: Well, in the ISM code, the checklist is encompassed in it, so.

MR. RAY: Yeah, I know that but I don't know if he's saying yes, he knows what a checklist is, or yes, the checklist that he used was an ISM.

FOURTH ENGINEER SINGHAL: Yes, sir, checklist is that certain procedure given by ISM for us to follow.

MR. RAY: Okay, I'm sorry.

MR. CURTIS: Thank you.

MR. RAY: No problem.

MR. CURTIS: Regarding liner failure, you had a cracked liner on number three unit, any feelings what would cause a liner to fail like that and crack?

FOURTH ENGINEER SINGHAL: Sir, I don't know.

MR. CURTIS: Have you ever seen one before crack like that?

FOURTH ENGINEER SINGHAL: Never I've seen, this is the first time I've seen liner cracking at sea.

MR. CURTIS: Did you actually see it when it was cracked, and the engine still running?

FOURTH ENGINEER SINGHAL: No, sir, I -- second engineer went down there and checked. After stopping the engine, I saw the crack.

MR. CURTIS: How long was the crack in the liner?

FOURTH ENGINEER SINGHAL: It was --

MR. CURTIS: Roughly?

FOURTH ENGINEER SINGHAL: Just (indiscernible).

MR. CURTIS: About a foot? Thirty --

FOURTH ENGINEER SINGHAL: (Indiscernible) centimeter (indiscernible).

MR. CURTIS: Okay, thank you. On this ship, have you seen any engine problems? Since you've been on, any engine problems that would slow the engine down, or stop the engine? Any engine problems?

FOURTH ENGINEER SINGHAL: One or two (indiscernible) I got (indiscernible) was there. Slow down, and one time from China to Seattle, at (indiscernible) freighter broke down, but that was not a main engine problem.

MR. CURTIS: Okay.

FOURTH ENGINEER SINGHAL: That was a (indiscernible) freighter. There is an automatic (indiscernible). So, bearing of that freighter broke down.

MR. CURTIS: So, no big main engine problems?

FOURTH ENGINEER SINGHAL: No main engine problems as such.

MR. CURTIS: Any problems in the engine that you've seen with too much carbonization?

FOURTH ENGINEER SINGHAL: I don't know, sir.

MR. CURTIS: On the engine, did you get a lot of carbonization on the cylinders?

FOURTH ENGINEER SINGHAL: Sir --

MR. CURTIS: Did you get a lot of problems from carbon?

FOURTH ENGINEER SINGHAL: Carbon, sir, means if you pull cylinder head down, you can see. Without opening, I don't know what was the condition inside.

MR. CURTIS: Engine room maintenance, if we're going into engine room maintenance, how does a particular -- any piece of machinery in the engine room, you have (indiscernible) the system?

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: How does it get from the system, how does it get to the person doing the maintenance, and how is it put back in the system as having been done?

FOURTH ENGINEER SINGHAL: Sir, I am in charge of purifiers and (indiscernible).

MR. CURTIS: Okay.

FOURTH ENGINEER SINGHAL: So, I am the one who's maintaining the running of (indiscernible) purifiers, and about the pumps that (indiscernible) suppose after five year, this pump has to be (indiscernible) and last time it was (indiscernible) 2004. So, it is (indiscernible) next maintenance of the engine (indiscernible) 2009.

So, if that period is near by, so (indiscernible) say, look, so that we can come to know that this machine is due for (indiscernible). If we will not do it, then it will

turn bad.

MR. CURTIS: Do you yourself go into BV Orchis (phonetic sp.) or does --

FOURTH ENGINEER SINGHAL: No, chief engineer was doing it, and at the beginning of every month, he's the one who is taking the printout, and underlining it, and handing it over to the second engineer, and the second engineer (indiscernible) two groups, and then he (indiscernible) pumps, then he will tell it to me, and accordingly, we plan the job. If we can do it at sea, we do it at sea. (Indiscernible) suppose main engine, then we do it at the port.

MR. CURTIS: Once you do the maintenance on your equipment, do you put it back in BV Orchis, or do you tell --

FOURTH ENGINEER SINGHAL: Basically, we are doing (indiscernible).

MR. CURTIS: So, you report it back to the --

FOURTH ENGINEER SINGHAL: Second engineer, and then he's the one who informs to the chief engineer.

MR. CURTIS: Manual, to do the maintenance, do you have to follow procedures in manuals?

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: Is that --

FOURTH ENGINEER SINGHAL: (Indiscernible) all the

manuals were lying in the control room itself.

MR. CURTIS: They're in the control room, themselves? Were all the equipment?

FOURTH ENGINEER SINGHAL: Yes, most of the equipment is supposed -- any of them are regularly not there, then we can go get chief engineer. He has got all the research of all the machinery.

MR. CURTIS: Okay.

FOURTH ENGINEER SINGHAL: But all machinery (indiscernible) are in the new manual in his cabin.

MR. CURTIS: Do you know how often the BV Orchis information is sent back to the office?

FOURTH ENGINEER SINGHAL: Sir, that (indiscernible) part, I know not.

MR. CURTIS: I just want to clarify too, that you pumped oil that morning of the 8th, we talked about?

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: You pumped from?

FOURTH ENGINEER SINGHAL: (Indiscernible) starboard side tank. DB tank to wind tank, sir.

MR. CURTIS: Just for my own clarification, we have the oil on board sheet. Just for the area, pump two --

FOURTH ENGINEER SINGHAL: It's bonded from this area (indiscernible) this area.

MR. CURTIS: So, from 2RR starboard.

FOURTH ENGINEER SINGHAL: To starboard, port side wind tank.

MR. CURTIS: Port side wind tank, okay. For drills, do you have a drill that addresses the grounding? If you were to have a grounding, do you have drills for that?

FOURTH ENGINEER SINGHAL: Yes, sir, (indiscernible) we had our drill and chief engineer use to brief -- chief officer use to brief us that (indiscernible) has to be taken on grounding. In case of grounding, sir, I was in charge of sounding bunker tanks. I (indiscernible) at that time duration, but I have to report it to chief engineer, and then he's the one who will report it to captain.

MR. CURTIS: This time, you never got a chance to sound your tanks? In this grounding?

FOURTH ENGINEER SINGHAL: This grounding, no, sir, because I be leaving lately for the helicopter, and I never sounded the tanks.

MR. CURTIS: Do you recall the last time you had a grounding drill?

FOURTH ENGINEER SINGHAL: I think from Seattle to maybe -- from China to Seattle, but I don't -- we had (indiscernible) but I don't even know grounding drill was there or not.

MR. CURTIS: These engines, do you have a pre lube pump you have to start? Before you start the engine, do you have to start --

FOURTH ENGINEER SINGHAL: No, sir.

MR. CURTIS: There's no pre lube?

FOURTH ENGINEER SINGHAL: No pre lube.

MR. CURTIS: Did -- were you down there when they were trying -- I apologize for not recalling our interview the other day. When they restarted the engine, tried to restart it after number three was isolated, was there any concern at that time that they may break rings if you start it too many times?

FOURTH ENGINEER SINGHAL: Sir, I never heard people talking about that - that piston rings can break or not.

MR. CURTIS: Did -- in the engine room, are you aware if they had a vibration analysis program, where they would check the equipment vibration?

FOURTH ENGINEER SINGHAL: I don't think so.

MR. CURTIS: Okay.

FOURTH ENGINEER SINGHAL: I don't remember.

MR. CURTIS: I just wanted to ask. I didn't know if they had that or not. I apologize for jumping around, just filling all the holes from the other day. You said the engine room operates usually unmanned, unless you're in

heavy weather, it's manned. At the time of the accident --

FOURTH ENGINEER SINGHAL: What I mean sir, it is always manned by the oilers, and one engineer is on watch in the cabin. If in case any problem that he don't understand, he immediately gives us a call.

MR. CURTIS: Okay.

FOURTH ENGINEER SINGHAL: But every time it is manned with the oiler.

MR. CURTIS: And this -- previous to the morning of the 6th, when did you start manning the engine room, do you recall?

FOURTH ENGINEER SINGHAL: Sir, actually, if the weather is very rough, chief engineer use to speak now you have to keep the watch, and if he feels the weather is okay, then we will go back to (indiscernible) system, means only oiler on watch, and we use to keep cabin watch. So, sometimes, manned, sometimes unmanned (indiscernible). So, I don't (indiscernible). Maybe first or second --

MR. CURTIS: Okay.

FOURTH ENGINEER SINGHAL: -- we started from that time. Sometime --

MR. CURTIS: A few days before?

FOURTH ENGINEER SINGHAL: Yes, sir, a few days before.

MR. CURTIS: How does the chief decide? How does

he decide to make it manned or unmanned?

FOURTH ENGINEER SINGHAL: When the rolling is pitching us too much, and turbo charging rpm, as well as the load is fluctuating too much, then he use to ask us to be in the engine room, and keep an eye on those parameters.

MR. CURTIS: If the fuel -- storage fuel tank you were burning out of, that was -- which tank were you burning out of?

FOURTH ENGINEER SINGHAL: Two (indiscernible).

MR. CURTIS: Two (indiscernible), and that was fuel from --

FOURTH ENGINEER SINGHAL: From Seattle.

MR. CURTIS: From Seattle? Had you burned much out of that tank? Out of the two center? I mean half of it? Just roughly.

FOURTH ENGINEER SINGHAL: I hope so, because already we had started using it from 28, and every day, we had (indiscernible). Twenty nine we started that day, 8 o'clock. So, already we are running 33 tons of oil, and maybe it was getting around approximately 400 tons. So, 28 and then 30, up to five, eight days, almost 200 -- plus 200, more than 200 tons we have already consumed.

MR. CURTIS: So, you used over half of that tank probably?

FOURTH ENGINEER SINGHAL: (Indiscernible) tank

I've used, sir.

MR. CURTIS: No problems with the fuel up to that point? Strainers?

FOURTH ENGINEER SINGHAL: No problem.

MR. CURTIS: Purifiers?

FOURTH ENGINEER SINGHAL: No problem.

MR. CURTIS: While I think of it, purifiers, did you use clarifiers and purifiers, or just purifiers?

FOURTH ENGINEER SINGHAL: Actually, these are not purifiers, we are using the term purifier, but these are clarifiers, and we are using only one at a time. Not like that outlet of the one goes to the other one.

MR. CURTIS: Right.

FOURTH ENGINEER SINGHAL: Not (indiscernible). Only one we are using at a time.

MR. CURTIS: So, it's pretty clean fuel if you're just using a clarifier?

FOURTH ENGINEER SINGHAL: This ship we don't have purifier, only clarifier we have one.

MR. CURTIS: Okay.

FOURTH ENGINEER SINGHAL: But terminology, we are using as a purifier, but actually it is clarifier.

MR. CURTIS: How often do you have to clean the clarifier?

FOURTH ENGINEER SINGHAL: A 1000 hours as per our

running hours.

MR. CURTIS: Every 1000 hours? About how long is that time wise? I apologize.

FOURTH ENGINEER SINGHAL: This was a long voyage, but otherwise, we was (indiscernible) between Indonesia, Taiwan. So, ship was not running two month's. So, maybe three and a half months one time.

MR. CURTIS: Really? So, you must have had pretty good fuel then --

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: -- to clean it that infrequently. Back to the engine shut down trips, alarms. If you had an alarm, you didn't see anything like a high jacket water temperature? Did you see anything? Did you see any jacket water temperature problems? I guess is my question.

FOURTH ENGINEER SINGHAL: This on the same day?

MR. CURTIS: The day of the 6th, did you have any problems with the jacket water temperature?

FOURTH ENGINEER SINGHAL: I told you I was out of that control room, and chief engineer was inside. So, there was alarm also, he would handle (indiscernible) everything that is off. Morning part of that he calls me, and I give him two (indiscernible), and then I lie down, I went inside, didn't hear any of the alarms.

MR. CURTIS: Is there an alarm for high jacket

water temperature?

FOURTH ENGINEER SINGHAL: I don't remember, sir, because he never called me.

MR. CURTIS: I mean, no, is there one in the control room?

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: Is there one alarm for the whole engine?

FOURTH ENGINEER SINGHAL: One alarm for the whole engine, and (indiscernible) alarm comes, there was a display on the computer system that this particular alarm is ending, and (indiscernible) use this, and the (indiscernible) will use it. So, if (indiscernible) use, suppose it is jacket water temperature. Suppose it is set at 90, and the temperature now is 92. So, it will show high set value, and the current value. So, you can -- can help you know that what is the problem.

MR. CURTIS: The jacket water, is there also one for each individual unit, or just one for the whole engine? The high jack the water temperature?

FOURTH ENGINEER SINGHAL: (Indiscernible?)

MR. CURTIS: Is the jacket water temperature alarm, is there one for each unit, or just one for the entire engine?

FOURTH ENGINEER SINGHAL: I think one. I saw only

(indiscernible) temperature was set at 57. Manifold temperature, I think so, but I am not sure.

MR. CURTIS: It's set at 57?

FOURTH ENGINEER SINGHAL: (Indiscernible) temperature, I think. Low, low 57 that's what (indiscernible) normal.

MR. CURTIS: On the engine, does that have a -- is the engine freshwater cooled? Is it saltwater cooling and heat exchanger, and has freshwater in the engine, or saltwater in the engine?

FOURTH ENGINEER SINGHAL: Please, sir, repeat your question. I don't understand.

MR. CURTIS: I'm trying to think of a way to phrase this. Is the engine -- does the engine have freshwater? Is the jacket water freshwater?

FOURTH ENGINEER SINGHAL: Yes, sir, is the jacket water freshwater, is the jacket water.

MR. CURTIS: Okay, so, somewhere there's a heat exchanger?

FOURTH ENGINEER SINGHAL: Yes, sir, freshwater coolers.

MR. CURTIS: Okay, freshwater cooler, saltwater cools the freshwater?

FOURTH ENGINEER SINGHAL: Yes, freshwater.

MR. CURTIS: Do you ever have any problem with the

atrainers on those? The saltwater strainers?

FOURTH ENGINEER SINGHAL: No.

MR. CURTIS: On the saltwater side, do you have a high and a low suction? Sea suction?

FOURTH ENGINEER SINGHAL: Yes, sir, we (indiscernible) three suctions. One low sea suction on the port side, and one high sea suction on the starboard side, and one more low sea suction on the starboard side, but forward (indiscernible).

MR. CURTIS: Okay.

FOURTH ENGINEER SINGHAL: Forward side.

MR. CURTIS: At sea, which sea suction were you on, on the 6th?

FOURTH ENGINEER SINGHAL: High.

MR. CURTIS: You were on the high suctions? Did you ever have problems in heavy seas with getting air in the system, from being on the high suctions?

FOURTH ENGINEER SINGHAL: Because I think always low -- one low sea suction was always open.

MR. CURTIS: Oh, one sea suction's always open?

FOURTH ENGINEER SINGHAL: Low means the forward one. Forward, starboard side it is always open.

MR. CURTIS: And you had the high open --

FOURTH ENGINEER SINGHAL: High open.

MR. CURTIS: -- as well, so there were two sea

suctions open?

FOURTH ENGINEER SINGHAL: (Indiscernible.)

MR. CURTIS: And the strainers, you -- have you had problems getting a --

FOURTH ENGINEER SINGHAL: We cleaned it out two month's before.

MR. CURTIS: Have you seen the strainers clog up before?

FOURTH ENGINEER SINGHAL: No.

MR. CURTIS: The liners on the engine, are they wet? Do you understand the difference between a wet liner, and a dry liner?

FOURTH ENGINEER SINGHAL: Yes, sir, wet liner has been lubricated. Like cylinder oil, you want to say what kind of --

MR. CURTIS: Water, was there --

FOURTH ENGINEER SINGHAL: Water cooled? I don't understand.

MR. CURTIS: I don't know how to phrase the question. The liner itself, did it have O ring seals in the liner, so there's actually --

FOURTH ENGINEER SINGHAL: A jacket is an O ring.

MR. CURTIS: Yes.

FOURTH ENGINEER SINGHAL: Yes.

MR. CURTIS: I'm jumping around myself here, so

I'm trying to keep track. Did you ever have problems with hot spots on the engine? Different cylinders suddenly get hot for no reason, and then cool off. Did you ever see that on these engines?

FOURTH ENGINEER SINGHAL: I don't know. I never saw that.

MR. CURTIS: They're pretty reliable engines?

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: So, one more question before I turn it over to Darrell, when would you use the light fuel? When would you put light fuel in the engine?

FOURTH ENGINEER SINGHAL: Generally, when we are doing any unit work. Unit work on a -- then you have to stop the circulating from at that time they were using -- second engineer was using light fuel oil on it. Sometimes if he use that climate is very cold, or something like that then he usually (indiscernible). Sometimes he calls me also.

MR. CURTIS: Do you have a separate -- where do you carry this -- the light fuel?

FOURTH ENGINEER SINGHAL: (Indiscernible) diesel oil (indiscernible). (Indiscernible) somebody realize it was (indiscernible).

MR. CURTIS: Is that -- just roughly?

FOURTH ENGINEER SINGHAL: If this is engine room

there on the control room platform, we have got one somewhere here near the workshop. We have got one there, near the service stand.

MR. CURTIS: How many -- do you know how many tons of light fuel you carry? Just roughly.

FOURTH ENGINEER SINGHAL: Approximately 71 metric tons.

MR. CURTIS: Not too much then?

FOURTH ENGINEER SINGHAL: No.

MR. CURTIS: So, if you were to service the engine, you would -- how long would you have to run the light fuel through it to clean it out?

FOURTH ENGINEER SINGHAL: I think 72, you can (indiscernible) the flushing. Flushing the system only by (indiscernible) one (indiscernible) ring, you're not using like that. Only after stopping, if you want to change it over, then second engineer use to flush it by 728 hundred liter, according to the flow meter.

MR. CURTIS: Not too much then?

FOURTH ENGINEER SINGHAL: Not too much.

MR. CURTIS: Thank you Anuj, I'm going to turn it over to Darrell now.

MR. HOWELLS: Darrell Howells, with the Coast Guard. Anuj, who's responsibility to start the main engines like when you're getting ready to get on the way for a trip?

FOURTH ENGINEER SINGHAL: Responsibility (indiscernible) say about the chief engineer and second engineer were always present when starting the main engine in the control room.

MR. HOWELLS: On the -- after the third unit was isolated, who was actually trying to start the engine? Who was in the engine room doing all that?

FOURTH ENGINEER SINGHAL: I was on the cylinder head platform. Both the chief engineer and second engineer they're maybe one by one. I don't know who all is doing that.

MR. HOWELLS: Okay.

FOURTH ENGINEER SINGHAL: (Indiscernible) I was not inside of the building.

MR. HOWELLS: So, to start the engine, they'd go in the control room? Is there a button to press to get the air, or a handle outside?

FOURTH ENGINEER SINGHAL: There was a handle.

MR. HOWELLS: Okay.

FOURTH ENGINEER SINGHAL: So --

MR. HOWELLS: And where was the handle located?

FOURTH ENGINEER SINGHAL: In the control room, on the panel, main panel.

MR. HOWELLS: How far is the control room from where you were standing?

FOURTH ENGINEER SINGHAL: The control -- this control room is on the top platform, and we are on the bottom platform.

MR. HOWELLS: You couldn't see then?

FOURTH ENGINEER SINGHAL: No, we cannot see.

MR. HOWELLS: So, the day after the unit was isolated, and they were trying to restart the engine, you were on the bottom platform?

FOURTH ENGINEER SINGHAL: Middle platform.

MR. HOWELLS: Middle platform, thank you. What was your responsibility?

FOURTH ENGINEER SINGHAL: Generally, when we -- when chief engineer or second engineer starts the engine, we were there only to feed the fuel injection pipes, whether the positions are there, it is getting hot or not, or any leak is around, or check the other machinery is -- generators are running, two unit is running, the compressors are running. So, we were around to check other machinery.

MR. HOWELLS: Was there anything out of the ordinary that day?

FOURTH ENGINEER SINGHAL: It was (indiscernible).

MR. HOWELLS: Everything was going normal as it usually did?

FOURTH ENGINEER SINGHAL: Only we were not able to

start the engine. So, chief engineer told me plenty times to turn the -- and gears are turning (indiscernible) that's what I was doing on that particular day.

MR. HOWELLS: Why do you think he was asking you to engage them?

FOURTH ENGINEER SINGHAL: Because of -- he had -- before trying out, he asked me to put blind, to blind the air -- air pressure to the cylinder. So, if the -- if, in -- before starting the engine, negative cam is at number three position. So, you cannot inject the (indiscernible) so you always want to change the position by turning the main engine.

MR. HOWELLS: Do you know what type of material the liner is made out of?

FOURTH ENGINEER SINGHAL: This particular liner, sir? I don't know.

MR. HOWELLS: I think, earlier, you said between 9:30 and 10:00, you were told to go secure the freshwater generator?

FOURTH ENGINEER SINGHAL: Yes, I tried to stopping the main engine, because second engineer discussed with chief engineer, they want to stop the engine. So, freshwater generator is running through the water from jet -- (indiscernible) water. So, he want me to stop the freshwater generator, sir. So, I went to stop the

freshwater generator.

MR. HOWELLS: Could you explain that to me again, what was running through what?

FOURTH ENGINEER SINGHAL: Freshwater generator is used to produce the freshwater for the ships. So, sir, the heat from the jacket water is used to -- we use to toss it through the (indiscernible) to the seawater, and it's get evaporated, and then from the seawater used to condense this steam, and we get (indiscernible) seawater.

MR. HOWELLS: It was taking heat from where, again?

FOURTH ENGINEER SINGHAL: Jacket water.

MR. HOWELLS: Jacket water on the main engine?

FOURTH ENGINEER SINGHAL: Yes, sir, main engine.

MR. HOWELLS: Waste (indiscernible) would that be a term (indiscernible)?

FOURTH ENGINEER SINGHAL: No, so that - that heat can be (indiscernible) for producing the hot water, instead of cooling it in the coolers.

MR. HOWELLS: Were you involved in the maintenance in the number one unit in Seattle?

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. HOWELLS: When you looked at the carbon, do you understand what I mean by the carbon?

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. HOWELLS: Can you explain to me what color that was?

FOURTH ENGINEER SINGHAL: Black.

MR. HOWELLS: Black? Was it black like gray black, or black like chocolate?

FOURTH ENGINEER SINGHAL: Yeah, black like chocolate.

MR. HOWELLS: During the repair of the isolating of that unit, did anyone ever check the oil in the sump of the main engine?

FOURTH ENGINEER SINGHAL: I don't remember. I think (indiscernible). Maybe second engineer has asked somebody to check the level.

MR. HOWELLS: Do you have any idea when there was any work done on the third unit prior to that day?

FOURTH ENGINEER SINGHAL: No, sir.

MR. HOWELLS: That's all I have.

MR. CURTIS: Brian Curtis, NTSB. Anuj, when you start the engine, was it -- it sounded -- is it your job to watch the indicator clocks?

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: When they started, did you notice anything come out of the indicator clocks? Were they clean?

FOURTH ENGINEER SINGHAL: Yes, normally, no (indiscernible) in that (indiscernible) while going through.

MR. CURTIS: (Indiscernible?)

FOURTH ENGINEER SINGHAL: I never saw anything coming out of indicator (indiscernible).

MR. CURTIS: So, you rolled it a little bit? Closed the indicator clocks?

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: And try to --

FOURTH ENGINEER SINGHAL: (Indiscernible.)

MR. CURTIS: Did it fire at all?

FOURTH ENGINEER SINGHAL: I don't think so.

MR. CURTIS: When you were doing the -- in Seattle, during the decarbonization, did you check the rings on number one? Was there a lot of soot, carbon in the rings?

FOURTH ENGINEER SINGHAL: Not too much carbon, it was (indiscernible).

MR. CURTIS: Did you check the rings, the spring?

FOURTH ENGINEER SINGHAL: I never checked myself, but I can say that I think none of the rings are broken.

MR. CURTIS: None of the rings are broken?

FOURTH ENGINEER SINGHAL: (Indiscernible), but I did not check those spring, because I did not do that one.

MR. CURTIS: The chief, was he in the engine room a lot? Was he down there a lot during the day?

FOURTH ENGINEER SINGHAL: I saw him most of the

time in the engine room.

MR. CURTIS: In the engine room?

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: He spent a lot of time in the engine room?

FOURTH ENGINEER SINGHAL: Yes, sir, generally, he use to come in my watch, and stay sometime 11:20, sometime 11:00, and then after the lunch, I saw him, sometimes 3 o'clock, coming down, and staying until 5 o'clock. He was spending a lot of time (indiscernible).

MR. CURTIS: Quite knowledgeable on the plan?

FOURTH ENGINEER SINGHAL: Yes, sir, I think he was (indiscernible) for the full time.

MR. CURTIS: He seemed comfortable starting and stopping the engines?

FOURTH ENGINEER SINGHAL: Yes, sir. MR. CURTIS: Jump around a little more here. Parts, take for instance your purifiers, if you used up parts, and you need to replace them, you take them out of inventory, out of stock?

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: And now, you don't have those parts anymore. How do you go about replacing those parts? How do you get the parts replaced? If -- how do you order them? What do you have to go through?

FOURTH ENGINEER SINGHAL: Suppose it's in case I want to order the parts (indiscernible) then there was a parts ordering manual on board, and there was a drawing number, which we can see, and what all (indiscernible) are required for replacement, you can check in that and accordingly, (indiscernible) number, part number, and how many units we are using in one purifier.

According to that we can order. We can give the address of the manufacturer, and we use to make a list, and hand it over to the chief (indiscernible), and then he use to prepare it on his computer. I think (indiscernible).

MR. CURTIS: If you needed the parts, is it relatively -- they were always willing to buy the parts that you needed that you felt you needed?

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: Do you feel you had a pretty good supply of parts for the engine room in your stocks?

FOURTH ENGINEER SINGHAL: Yes, sir, whenever we use to ask for anything, owners always supply us I think. I have never (indiscernible) a problem.

MR. CURTIS: Just one last question. The chief, generally, the chief or the second, generally, starts the engine?

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. CURTIS: Would you or their fourth --

FOURTH ENGINEER SINGHAL: We never (indiscernible). We never -- thirty year in my (indiscernible).

MR. CURTIS: You didn't touch it?

FOURTH ENGINEER SINGHAL: Never touched it.

MR. CURTIS: I guess my last question would be, can you think of anything surrounding the repair of the engine that maybe could've been done differently to make things go a little better?

FOURTH ENGINEER SINGHAL: No.

MR. CURTIS: Anything?

FOURTH ENGINEER SINGHAL: No, sir, I don't know what that's (indiscernible).

MR. CURTIS: Darrell, questions?

MR. HOWELLS: Anuj, is there anything that -- if your best friend was going to sail the same vessel, and he had to isolate that cylinder, is there anything that you would tell him, don't forget to do this?

FOURTH ENGINEER SINGHAL: If you're isolating the unit, it needs only you are cutting off the fuel. So, nothing special in that I think.

MR. HOWELLS: What would be your best guess why the engine wouldn't start?

FOURTH ENGINEER SINGHAL: I don't know.

MR. HOWELLS: Okay.

FOURTH ENGINEER SINGHAL: Because everything, according to us, engine was cranking. It was doing -- it was turning. Fuel was also in, but I don't why it did not start.

MR. HOWELLS: Did you hear any discussion about, if it doesn't start, we will do this next?

FOURTH ENGINEER SINGHAL: Only next day, second engineer told us that we will pull out the number six unit. So, he told me that maybe because of let off compression, we cannot start the engine. So, he want to change the piston, and -- because prior to that while inspecting under piston spaces, I think, this chief engineer found small piece of piston.

MR. HOWELLS: In which unit?

FOURTH ENGINEER SINGHAL: Number six.

MR. HOWELLS: We know that the rings were changed in number six?

FOURTH ENGINEER SINGHAL: Yes, sir.

MR. HOWELLS: Did you hear any discussion about if once it was put back together, and it didn't start, what would we do next? Do you know anything about that?

FOURTH ENGINEER SINGHAL: Well, (indiscernible) on that particular day, I was not part of doing all those things. I was busy in transferring the oil.

MR. HOWELLS: You were busy what?

FOURTH ENGINEER SINGHAL: Transferring the --

MR. HOWELLS: Transferring the oil.

FOURTH ENGINEER SINGHAL: -- diesel oil, last day. So, I never had a chance to hear anything.

MR. HOWELLS: Do you remember how much oil you transferred?

FOURTH ENGINEER SINGHAL: Maybe 15 cubics.

MR. HOWELLS: Fifteen?

FOURTH ENGINEER SINGHAL: Metric cube.

MR. HOWELLS: Thank you, that's all I have.

MR. CURTIS: I apologize, one more question, Anuj. How many ships have you sailed in the engine room, (indiscernible) total? How many different ships?

FOURTH ENGINEER SINGHAL: I did two ships as a cadet, and this was my third ship as a fourth engineer.

MR. CURTIS: How do you rank this engine room for cleanliness, operation, efficiency? Was it very good, very bad, in the middle? How do you rank it overall as?

FOURTH ENGINEER SINGHAL: I think it was good (indiscernible), sir. We were doing all the (indiscernible) time.

MR. CURTIS: Well, thank you, sir. It's -- I guess that's all the questions we have. It's now 15:40, and this concludes the interview. Thank you.

MR. RAY: Can I ask a question?

MR. CURTIS: Yes.

MR. RAY: Since I came in late? The fourth engineer wanted to correct some statements he made in your last interview --

MR. CURTIS: (Indiscernible.)

MR. RAY: -- concerning the stop time. Did you do that at the beginning?

MR. CURTIS: Yes.

FOURTH ENGINEER SINGHAL: I want to speak one more time that I want to apologize that I stated wrong time of stopping in my last interview. I did this because of master of the ship does that. He has returned 12:15 time in the log book. So, he want us to stick on that particular time.

MR. CURTIS: All right, thank you very much, Anuj, and this concludes the interview. Thank you.

(Whereupon, at 3:40 p.m., the interview was concluded.)

C E R T I F I C A T E

DEPOSITION SERVICES, INC., hereby certifies that the attached pages represent an accurate transcript of the electronic sound recording of the proceedings of the National Transportation Safety Board Interview regarding the grounding of the Selendang Ayu on December 9, 2004.

INTERVIEW OF FOURTH ENGINEER:

ANUJ SINGHAL

Eve Jemison, Transcriber